



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

JOURNAL

OF THE

STATISTICAL SOCIETY OF LONDON.

SEPTEMBER, 1838.

Second Report of the Irish Railway Commissioners.

THE Second Report of the Commissioners appointed to consider as to a General System of Railways in Ireland, which has just been laid before Parliament, is in many respects a most important and most valuable statistical document.

The Commissioners (whose names are worthy of being recorded on account of this Report, as some of the most eminent contributors to statistical knowledge,)* were appointed to examine the principal lines of communication in Ireland, with reference to the comparative advantages and facilities they will afford for the construction of railways; to consider the expediency and the best means of adopting a general system of railways in that country; to enquire into the best mode of directing the development of this new and important means of intercourse to the channels whereby the greatest advantages may be obtained by the smallest outlay, taking into consideration not only the existing means which the country presents, but those which may be anticipated from the resources which may in future be developed; and, lastly, to enquire what ports on the western or southern coasts of Ireland are best adapted for communication with America, and what facilities exist for the construction of lines of railroad across Ireland to such ports, with the greatest possible collateral benefits to internal traffic.

It would be impossible within the limits of the Journal to give more than an outline of the Report and of the recommendations which it contains, with an abstract of the principal grounds upon which the latter are founded. This outline, however, will be sufficient to acquaint the reader with the nature of the Report, and to enable him with greater ease to consult the original for fuller information.

The Report commences with a general statistical view of Ireland, exhibiting the manner in which the population is distributed and employed—the exports and imports of the country—the amount of the present traffic, and through what channels it is carried on—the number of public conveyances throughout Ireland, and the average number of passengers on every road—with the amount of postage received in the different towns. From this information, the Commissioners have deduced the relative importance of different districts, and the commercial activity prevailing in each. The next branch of enquiry relates to the nature and fertility of the soil—the productiveness of the different districts—the capabilities of improvement which they possess—and the facilities which they afford for railway communications. The geological

* Thomas Drummond, Esq. R. E., Under-Secretary of State for Ireland; Colonel J. Fox Burgoyne; Professor Peter Barlow; and Richard Griffith, Esq.

structure of the country throws great light upon these questions, and the Report contains a very valuable paper upon this branch of the subject by Mr. Griffith.

In illustration of this part of the Report, some beautiful maps on a new plan are given, which places before the eye a picture of the country, representing the distribution of its population and traffic, with its geological features in considerable detail.

The Commissioners state their conviction, founded upon the information thus obtained, that the important public objects anticipated from the establishment of railways in Ireland, are not to be accomplished by separate and isolated lines, but by a well-combined and judicious system, in which the joint traffic of many places and districts should pass to a great extent over one common line.

This principle, and the circumstances above detailed, have guided the Commissioners in selecting the direction of the main trunk lines which they recommend, and which they describe at considerable length. The reports of the engineers employed in surveying the country in these directions, with the engraved plans and sections of the proposed lines which accompany the Report, are well worthy of attention.

The second part of the Report is devoted to an enquiry into the probable return on the capital which would be required to construct and work these lines. To ascertain this point, the Commissioners enter, in some detail, into the economy of railroads, the mechanical principle of their construction, the cost of constructing and maintaining them, and of working locomotive engines, with the means by which the expense may be confined to the lowest scale. The results thus obtained are applied to the previous data respecting the population, produce, and consumption of the districts traversed by the proposed lines, and the Commissioners come to the conclusion that these lines are the best adapted, in the aggregate, to give the greatest return on capital.

The third part of the Report is occupied with the consideration of the circumstances peculiar to the situation of Ireland, and the present condition of its inhabitants, which would render the promotion of such works as are recommended, or any of them, an object of national importance; and of the means by which it might be necessary or advisable to promote them. The Commissioners here examine the peculiar facilities which Ireland offers in comparison with England for a steam communication with America; and devote a chapter to the then agitated, but now settled, question of the practicability of such a communication in the present state of steam navigation. They then proceed to shew the necessity of the most rapid communication between London and Dublin, in order to obtain success for any attempt to establish an intercourse with America by this route, and its importance to the profitable working of railways in any part of Ireland; and they give a statement of projects which have been proposed for effecting this communication. The present condition of the population of Ireland, with a view of the peculiar circumstances which affect it, are next reviewed, and some important facts are added, showing the influence of railways in developing the resources of a country, and improving the moral and physical state of its inhabitants.

The Report concludes with recommendations as to the mode in which

public aid may be most effectually and economically given to works of this nature, and suggestions as to a general control of railway companies.

The Appendix contains an outline of the Geology of Ireland, by Mr. Griffith; suggestions on the powers to be given to railway companies; the Reports of Mr. Vignoles and Mr. Macneil, the engineers employed to survey the country on the proposed lines of railway; Captain Evans's Report on the Western Harbours of Ireland; Mr. Vignoles' and Mr. Cubitt's Reports on Railways through Wales, with several other documents and valuable Statistical Tables relating to the commerce, traffic, and resources of Ireland.

In attempting to give a digest of this mass of information, we shall follow, as far as possible, the order of the Report, availing ourselves of the documents in the Appendix to illustrate or enlarge upon the several topics to which they relate.

The first part of the enquiry relates to the amount, distribution, and employment of the population.

Amount of the Population.—The population of Ireland was, in the year—

1731	.	2,010,221				
1791	.	4,206,602	rate of increase per annum	$1\frac{1}{2}$	per cent.	
1821	.	6,801,827	,	,	$1\frac{3}{4}$,
1831	.	7,767,401	,	,	$1\frac{1}{4}$,
1834	.	7,943,960	,	,	$\frac{3}{4}$,

The last interval is perhaps too short to furnish an exact estimate of the present rate of increase; but if the rate between 1821 and 1831 be taken as a guide, the present population of Ireland (in 1838) is 8,523,750. The present population of Great Britain, calculated in the same manner, is 18,226,725; whence it appears that the population of Ireland is within 600,000 of being equal to one-third of the population of the United Kingdom.

Distribution of the Population.—To give a distinct view of the manner in which this mass of people is distributed over the country, a map has been prepared, which indicates, by various degrees of shade, the relative densities of the population. It appears that the population is most numerous in the counties of Armagh, Monaghan, and in part of the counties of Cavan and Fermanagh, Antrim, and Down. Diminishing in density, but still furnishing a large proportion to the square mile, the population extends over the counties of Longford, Westmeath, King's, Queen's, Kilkenny, Carlow, and Wexford; and thence a large mass, second only to the northern portion, spreads over the southern counties of Tipperary, Limerick, and parts of Cork and Waterford. Beyond the Shannon lies a district very thickly peopled; and the parts of Roscommon, Leitrim, &c., adjacent to the river, have the same proportion of inhabitants as the midland district.

These four divisions of the population differ exceedingly in social condition, in habits, character, and even in personal appearance. The northern portion are better lodged, clothed, and fed than the others: the wages of labour are higher, being on an average about 1s. per day; and their food consists chiefly of meal, potatoes, and milk. They are a frugal, industrious, and intelligent race, inhabiting a district for the

most part less fertile than the south of Ireland, but cultivating it better, and paying higher rents in proportion to the quality of the land.

In the southern districts the population is in every respect in a worse condition; their habitations are inferior; their food consists at best of potatoes and milk, without meal; their wages are one-third less, or 8*d.* a day; yet the peasantry are a robust, active, and athletic race; capable of great exertions; often exposed to great privations; ignorant, but eager for instruction; and readily trained under judicious management to habits of order and steady industry.

The population of the midland districts resembles that of the south; but that of the western district is decidedly inferior to both in condition and appearance. Their food consists of the potato alone, without meal, and in most cases without milk; their cabins are wretched hovels, their beds straw; the wages of labour are reduced to the lowest point, not averaging more than 6*d.* a day. Agriculture is in the rudest and lowest state; a farmer employing labourers, and adopting the improved system of modern husbandry, is rarely to be found; the country swarms with small occupiers; labour brings no adequate return; poverty and misery have deprived the people of all energy, and the great mass of them exist in a state bordering upon destitution.

Looking then to the numbers, condition, and habits of the people within these four great divisions, and to their relative capabilities of benefiting by an improved system of communication, the Commissioners express their opinion that the first efforts should be directed towards carrying lines of railway from Dublin through the northern and southern districts. The population of the western district are not in a condition to profit equally by such works; but greater good would be effected among them by opening common roads, of which in some parts they are in great want.

It will be found that the relative amount of traffic, number of passengers, and other circumstances, unite to confirm this view: they further define more particularly the direction which the lines should follow, and show their respective usefulness and importance.

Employment of the Population.—With respect to the employment of the people, it is essentially agricultural; but in the northern districts numbers of the peasantry, who occupy and cultivate small portions of land, devote their spare time to the domestic manufacture of linen. The culture of flax, its preparation and manufacture, occupy a considerable portion of the population in the counties of Armagh, Antrim, Down, Tyrone, Londonderry, and part of Monaghan.

The number of weavers who manufacture on their own account is decreasing; but as machinery has not yet been so extensively applied to the manufacture of linen as to the spinning of yarn, the hand-loom weaver is still able to hold his ground.

There are in Belfast and its immediate vicinity 15 mills for spinning linen yarn, and 4 at places not far distant. The largest of these mills employs 800 persons, and its annual consumption of flax is 720 tons. No authentic information of the state of the linen trade can be obtained subsequent to the year 1824, when the Linen Board was discontinued. In that year the value of unbleached linen sold in Ireland was 2,580,697*l.*, of which 2,109,305*l.*, or 80 per cent., was sold in Ulster. The number

of acres sown with flax in Ireland in 1823 was 122,242, of which 80,936, or two-thirds, were situate in Ulster. From Returns by the Collectors of Customs it appears that the export of linen from Ireland to foreign countries in 1825 was 55,114,515 yards; in 1835 it was 70,209,572;—shewing an increase of 15,095,057 yards, or 27 per cent. The value of linen exported in 1835 is stated to have been 3,730,854^l.*

The only town in Ireland in which the cotton trade has been established to any extent is Belfast, and there it is represented as declining. Several mills designed for cotton-spinning are now employed in spinning flax, and there are at present only 6 cotton-mills in Belfast.†

The woollen trade has considerably diminished since 1822. At that time there existed in and about Dublin 45 manufacturers, having 92 billies, employing 2885 hands, and producing annually 29,312 pieces of cloth. The value of this was then stated at 336,380^l., but there is reason to believe that it did not exceed 200,000^l. There are now only 36 billies employed in the same district, and the value of goods manufactured is from 90,000^l. to 100,000^l.—a decrease of one-half.

In 1822 the returns from the districts of Cork, Kilkenny, Moate, and Carrick-on-Suir, gave the number of 3184 persons employed, and 19,322 pieces manufactured, of the value of 199,100^l. These amounts are stated a good deal too high, but at present these districts do not manufacture to the extent of 20,000^l. The flannel trade of Wicklow and Wexford was estimated at 3000 persons employed, and 7800 pieces made, of the value of 54,600^l. : it does not at present amount to 500^l. The manufacture, however, of worsted and stuff articles has greatly increased since 1822, and is now carried on to a considerable extent at Mountmellick and Abbeyleigh.

The wool grown in Ireland was estimated in 1821 at 5000 bags of 50 stones each; it has since increased to about 7000 bags, or from 300,000 to 350,000 stones, in value about 300,000^l. Irish wool is suitable only to the manufacture of cloth of very low price, and to the worsted manufacture—hence the recent extension of the latter branch. Two-thirds or more of the wool is exported to England and France. The fine cloths of Dublin are beginning to find a market in England. Mr. Willans calculates that the consumption of woollen goods in Ireland does not exceed 1,400,000^l. per annum. This trade is now in a healthy state, and there is reason to expect its yearly advance.‡

There are no other manufactures of national importance. Of late years, however, the various processes to which agricultural produce is subjected, such as grinding, malting, brewing, and distilling, have been greatly extended and improved. Until lately, Irish wheat was almost

* According to the Returns of the Inspectors of Factories there were, at the close of 1837, 41 flax, hemp, or tow-factories, in Ireland, all of which, with two exceptions, are situated in the north, chiefly at Belfast. The number of hands employed in them was 7810, of whom 3036 were under 18 years of age.

† In December, 1837, the Inspectors of Factories reported that there were 25 cotton-factories in Ireland; those of the largest size, excepting 1 in the county of Waterford, being situated in Belfast or its vicinity. The number of workers employed was 3683, of whom 1738 were under 18 years of age.

‡ The number of woollen or worsted factories in Ireland in December, 1837, was 46, all situated at Dublin or in the southern counties. They employed 1321 hands, of whom 110 were under 18 years of age.

entirely ground at Bristol and Liverpool, but this is no longer the case. Great breweries have been established in Dublin and Cork, and Irish porter is largely exported to England, and successfully rivals that of London, even in the metropolis itself. The quality of Irish produce has also considerably improved. Irish butter, pork, and beef, bring higher prices in the English market than they did some years ago, while the quantity produced and exported has much increased. These improvements are most manifest in the districts of Cork, Waterford, Limerick, and Belfast.

But these signs of growing prosperity are unhappily not so discernable in the condition of the people as in the amount of the produce of their labour. The proportion of the latter reserved for their use is too small to be consistent with a healthy state of society.

Nature and Amount of the present Traffic.—The Commissioners preface this section of their Report with some remarks upon the great want of statistical data in this country, which are worthy of being transcribed at length. “We have had great difficulty in obtaining any information which could be depended on with respect to the important subject of the present traffic of Ireland. Though the value of statistical information is now generally understood and admitted, no steps have as yet been taken in this country towards collecting it to the extent, or with the precision, commensurate to its great importance. The data which such returns furnish constitute, in many cases, the only sound foundation for legislation. They frequently develop relations which it greatly imports the well-being of society to have clearly ascertained and established; and they furnish the most important aid, as well as point out the safest course, in removing impediments to national prosperity, and in promoting judicious improvement. Yet, notwithstanding these advantages, which cannot be disputed, the statistical returns of Great Britain and Ireland, except when relating to revenue, are lamentably defective. And whenever a public enquiry becomes necessary into any matter connected with our social condition, the parties charged with such enquiries find themselves impeded at every step by the want of this information; they are compelled, amidst difficulties which never can be removed, except at a great cost, to begin and collect facts for their own guidance and information, and with very little aid from public records or official documents. Even when a machinery exists, as in the Customs and Excise, which, at a small expenditure, might be rendered available for collecting much valuable information of a statistical nature, no such use is made of it: whenever an article of commerce ceases to be subject to taxation, all accurate information as to its amount, consumption, and distribution, is lost.”

Thus, in Ireland, no account of the trade or of passengers between that country and Great Britain—no details respecting some articles of commerce—no statement of produce brought to the great fairs and markets, or of traffic on the road—can be officially supplied.

In default of these sources of information, the Commissioners had recourse to the constabulary force, through whose assistance, together with returns from the Customs, and the officers of the principal canals, and of some of the largest coach and car establishments, an account of the traffic of the principal towns in Ireland has been prepared and represented on a map by Lieut. Harness, R.E.

A reference to this map shows that the largest line of internal traffic stretches from Dublin to the westward, along the Grand Canal, joining the Shannon at Shannon Harbour, and extending down that river to Limerick. The Shannon is now navigated for the distance of 150 miles by a number of steam-vessels; and a regular and thriving intercourse is established, by means of the Grand Canal, between Limerick and Liverpool.

This canal extends from Dublin to the Shannon, $79\frac{1}{2}$ miles, and thence to Ballinasloe $9\frac{1}{2}$. Its branches are 7, and their aggregate length is $65\frac{3}{4}$ miles: of these, the chief extends to Athy, where it joins the Barrow navigation. In 1822, the total tonnage conveyed on the Grand Canal was 134,939; in 1830, 224,749; and in 1837, 215,910. The tolls in 1837 amounted to 40,859*l*. In 1830, the effect of the introduction of steam-vessels on the Shannon began to be felt on the Grand Canal. The Inland Navigation Company has now 9 steamers on the river, which carried 47,289 tons of goods in 1836; and in the same year conveyed from Limerick to Dublin, for transhipment to Liverpool, 289 tons of wheat, 7158 tons of flour, 1156 tons of oatmeal, and 12,795 firkins of butter.

The following are the remaining principal canals and navigations in Ireland:—

The Royal Canal, which extends from Dublin, through Mullingar, to Richmond-harbour on the Shannon, 92 miles. It has one branch 5 miles long, to Longford. The total receipts in 1836 were 25,148*l*., and the expenditure 11,912*l*.

The Barrow Navigation reaches from Athy, where it is joined by a branch of the Grand Canal, to its junction with the river Suir below Waterford. In 1800, the tonnage conveyed on it was 19,828; and in 1835 it was 66,084. The tolls in the latter year amounted to 4966*l*.

The navigation of the Suir, which is very imperfect, extends from Waterford to Clonmel, a distance of 40 miles.

The Boyne Navigation is 19 English miles in length, uniting Drogheda and Navan. The tolls in 1837 amounted to 775*l*.

The length of the Newry Canal is $16\frac{1}{2}$ Irish miles; it forms the communication between Lough Neagh and Newry, and thence to the sea. In 1837 the tonnage amounted to 102,332, and the tolls to 3505*l*.

The Tyrone Navigation was executed at the public expense, to encourage the working of certain collieries at Coal Island. The tonnage in 1836 amounted to 7291, of which only 718 tons were coals.

The Lagan Navigation was begun in 1753, to connect Belfast with Lough Neagh. The tonnage in 1836 amounted to 44,700, and the tolls to 2060*l*.

The length of navigation from Belfast to Coal Island is 61 miles, and from Newry to the same place $39\frac{1}{2}$ miles.

The Ulster Canal, which is now completed from Lough Neagh to Monaghan, and will pass through Lough Erne to Belleek, near Ballyshannon, will nearly unite the eastern with the western shore.

The total tonnage carried by all the canals and navigable rivers in Ireland may be taken at about 600,000 tons, and the tolls, at the average rate of 1*d*. per ton a mile, at 71,242*l*. The average distance which the above tonnage is carried is 30 miles.

The quantities of agricultural produce brought from the interior to the several ports of Ireland is estimated at 1,225,000 tons, of which 700,000 tons are for exportation, and the remainder for consumption in the ports.

The return, or import trade, is computed at 385,000 tons; there then remain materials for building, fuel, and manure, the supply of which varies greatly with the circumstances of each port.

Lieutenant Harness has made the following estimate of the inland traffic to and from the several ports:—

Towns.	Supposed present Population.	Traffic to the Town.	Traffic from the Town.	Total.
Dublin . . .	265,000	418,000	362,000	780,000*
Cork . . .	100,000	261,200	139,600	400,800
Belfast . . .	63,000	157,300	207,000	364,300
Limerick . . .	70,000	232,000	32,400	264,400
Waterford . . .	29,000	155,800	80,000	235,800
Galway . . .	36,000	199,200	13,900	213,100
Londonderry . .	10,600	58,400	67,500	125,900
Drogheda . . .	17,200	67,700	39,900	107,600
Newry . . .	14,600	53,700	51,000	104,700
Sligo . . .	18,000	92,450	10,200	102,650
Wexford . . .	12,000	53,300	33,900	87,200
Dundalk . . .	10,500	55,350	28,400	83,750
Youghal . . .	10,000	38,900	32,700	71,600
Tralee . . .	10,600	55,100	3,100	58,200

The remaining ports are inconsiderable, both as to population and trade.

The value of the trade of the principal ports in 1835 is shewn in the following Table, which includes the coasting trade with Great Britain:—

PORTS.	Value of Imports.	Value of Exports.	Total.
Belfast	3,695,437	4,341,794	8,037,231
Dublin	4,430,321	2,528,543	6,958,864
Cork	2,751,684	2,909,846	5,661,530
Waterford	1,274,154	1,821,245	3,095,399
Londonderry	708,054	1,040,918	1,748,972
Newry	568,711	616,836	1,185,547
Limerick	323,740	726,430	1,050,170
Wexford	621,417	312,136	933,553
Drogheda	259,854	766,027	1,025,881
Dundalk	107,953	452,813	560,766
Sligo	124,692	369,490	494,182
Galway	88,268	251,864	340,132
Youghal	28,310	215,316	243,626
All other Ports. . . .	354,502	1,041,555	1,396,057
Total	15,337,097	17,394,813	32,731,910

* At p. 15 of the Report the traffic to and from Dublin is stated at 966,000 tons; the above figures are taken from Lieutenant Harness's Report in the Appendix.

all the traffic from that town, augmented by contributions from Virginia, Kells, and Enniskillen; it would again fall in at Armagh with the course of trade to and from Belfast: but in the intervening distance it would cross and intersect the stream of traffic flowing towards the coast, and would therefore be of very little service in facilitating and promoting the carrying trade of this part of the country. It is on the conveyance of passengers that this line of railway must rest its chief claim to support as a work of public utility; and in this respect it would possess advantages over almost any other line in Ireland.

The state of travelling throughout the country, and the relative amount of passenger traffic on different roads, is an important point for consideration in estimating the comparative eligibility of various lines of railway.

A map prepared by Lieutenant Harness shews the direction and relative amount of travelling throughout the country, and denotes by figures at the side of the lines the average number of persons passing weekly, by public conveyances of all kinds, between the various places on the map.

From this it appears that the largest stream is from Dublin towards Naas, where it divides into three branches: the first, passing by Carlow, Kilkenny, and Clonmel, to Cork; the second, by Mountrath, Roscrea, and Nenagh, to Limerick; while the third, passing along the Grand Canal, is chiefly dissipated among the small towns on its banks, a small portion reaching Ballinasloe.

Next in importance are the streams through Balbriggan and Ashbourne, uniting at Drogheda, and continuing thence to Newry; at which town a branch separates towards Armagh, where it is again subdivided into smaller branches, the principal of which pass by Caledon to Omagh and Strabane, on the left, and to Moy, Dungannon, and Cookstown, on the right. The main line from Newry continues through Lisburn to Belfast. Next in magnitude to these two great lines is the stream running directly to the west, through Lucan, Maynooth, Enfield, Clonard, and Kinnegad, where a branch separates to Athlone by Kilbeggan; the main line continuing to Mullingar and thence to Longford; from which a small stream passes through Carrick-on-Shannon and Boyle to Sligo. The Athlone branch continues to Ballinasloe, where another small division takes place, a portion diverging to Tuam and Castlebar, while the larger passes by Loughrea to Galway. The Royal Canal runs close to the main route, touching it at several points; passing by Mullingar, and communicating with Longford by a branch from Killashee. Swift boats are now established as far as Mullingar, 52 miles from Dublin, which they reach in 8 hours; and the common or slow passage-boats ply regularly between Dublin and Longford, performing the journey in 23 hours. Next in point of consideration is a stream to the north-west; it branches off on the left at Clonee to Trim, and to Navan on the right, passing through the latter place to Kells, Cavan, and Enniskillen.

Applying this information, with the previous data, to the particular lines, which seem to promise the greatest advantages, the Commissioners have formed an estimate of the traffic and travelling which may reasonably be expected on them. It is as follows:—

	Miles.	Average Number of Passengers moved over every Mile daily.	Average Number of Tons moved over every Mile daily.	Average Daily Receipts.						Total Daily Receipt for Passengers and Goods.		
				Passengers at 1 <i>d.</i> per head per Mile.			Goods at 2 <i>d.</i> per Ton per Mile.					
South Western Line to Cork, with branches to Limerick and Kilkenny	228½	342	87·37	£.	s.	d.	£.	s.	d.	£.	s.	d.
Northern Line, through Armagh to Belfast . . }	121½	456	67·41	288	10	5	56	16	7	345	6	0

Geology.—The precise course of the proposed lines of railway has been in a great measure determined by the features and conformation of the country. Certain geological formations in Ireland are uniformly found to offer peculiar facilities for such works. Not only are they easily traversed, but they furnish excellent and abundant materials for construction; they are remarkable also for general fertility, and they contain all the elements most valuable for improving and reclaiming land. This leads us to a brief review of the geology of Ireland.

Though the geological structure of that country is similar to that of England, still the relative geographical position of the various rocks is essentially different. In England the mountain ranges, consisting of the primary and transition classes, are situate near the west coast, and the newer strata are successively accumulated on each other to the east and south, in which directions the country is comparatively flat. In Ireland, on the contrary, the coast is for the most part mountainous, while the interior is flat, and seldom presents hills of considerable elevation. Thus the primary mountains of Antrim, Derry, and Donegal occupy the north and north-west coasts; those of Sligo, Mayo, Galway, and Kerry, the west and south-west. The slate districts of Cork and Waterford form the south and south-east; while the mountains of Wicklow, Louth, and Down, are situate on the east coast.

These mountain-tracts rarely extend more than 20 miles inland; and we find the interior, with trifling exceptions, composed of flat or gently swelling grounds, covered by a rich and fruitful soil. This peculiar conformation of the surface has been the origin of the great number of rivers with which the coasts abound; they have their sources in the neighbouring mountains, whence they flow in short but rapid courses directly into the sea.

The Shannon forms the most striking example of the rivers of the interior, flowing slowly through the flat country. There are several other rivers which have their origin in the central districts, but they are insignificant in comparison with the Shannon. They all exhibit the same sluggish character, and, when the slow current of water is interrupted by any impediment, have the same tendency to flood the flat country, on either side, for a considerable extent.

By far the greater part of Ireland presents a formation of carboniferous or secondary limestone; but as the exceptions are chiefly confined to the coasts, it may be said that almost the whole of the centre of the country offers this feature. The principal exceptions are in the south-west, where coal prevails over the west of the counties Clare, Limerick,

Kerry, and the principal part of Cork. In the south-east, graywacke slate extends along the coast from the middle of the county of Waterford nearly to Kingstown. The same slate is again found in the county Louth, and extends over parts of Cavan, Monaghan, Armagh, and Down. Then commences the tabular trap, which extends over the whole of Antrim and the eastern part of Londonderry. The remainder of the latter county, with the principal part of Donegal and Tyrone, presents a formation of mica slate, which also extends over the western parts of the counties of Mayo and Galway. The north-western extremity of Ireland consists almost entirely of granite and quartz. The latter formation is rarely found in any other part of the island; the former only in three districts to any extent. First, in a line running from Kingstown, in the county Dublin, across Wicklow and Carlow, to a short distance beyond the Barrow, separating in the first half of its course the bed of graywacke slate, and in the second dividing the secondary limestone from the slate. The second bed of granite unites the southern parts of the counties of Down and Armagh. The third extends over a considerable portion of the county Galway, westward of the town.

The characteristic feature of the limestone country is flatness, and the soil, with the exception of the boggy districts, is unusually fertile. In many parts most valuable quarries have been opened, and abundance of stone, of very large dimensions, can be procured for every architectural purpose. Beautiful marbles of various tints occur abundantly in different places, more particularly at Kilkenny, Limerick, Galway, Cork, King's County, Roscommon, and Armagh. In some of the schistose districts valuable beds of fine-grained roofing slate have been discovered and opened. The chief of these are situated in the county of Tipperary, on the banks of Lough Derg, on the Shannon; at Glenpatrick, south of the river Suir, in the county of Waterford; and at Valentia Island, on the west coast of the county of Kerry. Good veins of slate also occur to the east of Strangford Lough, in the county of Down, in some parts of the counties of Armagh, Monaghan, in Wicklow, Wexford, and the south coast of Cork.

With respect to metallic mines, veins both of copper and lead have been discovered and partially worked in many of the primary slate districts of the counties of Donegal and Galway, and in the granite slate districts of the counties of Down, Armagh, Monaghan, Wicklow, Wexford, Waterford, Cork, and Kerry; also in different parts of the great central limestone district.

At present few of these mines are in operation. Among the copper-mines the most important are those of the vale of Ovoca, in the county of Wicklow, which yield from 10,200 to 12,800 tons a year, varying from 4*l.* to 5*l.* a ton; those of Bonmahon, in the county of Waterford, yielding from 4000 to 5000 tons, at 9*l.* a ton; and those of Allihies, near Berehaven, in the county of Cork, producing from 6000 to 7000 tons at the same price. The two latter are highly productive, and give employment to a considerable number of miners and labourers. The remaining copper-mines are one near Cahirciveen, in the county of Kerry, and two near Cappawhite, in Tipperary, all opened since the commencement of 1837; and the Audley mine at Skibbereen, in the county of Cork.

The lead-mines of Ireland have not latterly been prosperous, and few

are at present at work ; the most extensive are those at Conlig mountain, near Newtownards, in the county of Down ; of Derrynoose, in the county of Armagh ; of Lugganure, in the county of Wicklow ; and in the limestone district of the county of Clare, at Ballyhicky, near Ennis. The quantities produced cannot be stated.

In Ireland coal occurs in seven distinct localities, which have been called the Leinster ; the Slieve Arda, or Tipperary ; and the Munster districts, situate to the south of Dublin ; the Monaghan, the Connaught, the Tyrone, and the Antrim, to the north of it. The coal consists of two distinct species, non-flaming coal or anthracite, and bituminous or blazin gcoal. The first, with the exception of two beds of trifling importance which occur in Antrim, are confined to the coal districts, situated to the south of Dublin, while the northern contains bituminous or blazing coal.

The Leinster Coal District is situated in the counties of Kilkenny, Carlow, and Queen's County. It contains 7 workable beds of coal, arranged in regular succession, one above the other. The collieries have been worked for upwards of a century, and now produce annually about 120,000 tons of coal and culm. The former is used for domestic purposes and malting, the latter for burning lime. The upper beds, which are the purest, are now nearly exhausted ; but 3 of the lower beds, which are very extensive, have never been worked.

The Slieve Arda, or Tipperary Coal District.—The general circumstances of this district are similar to those of the latter. It has, as far as is known, 3 beds of coal, the lowest 9 inches, and the second and third 2 feet in thickness. The principal collieries are situated at Colebrook, and at Coolquill, in the neighbourhood of Killenale. The line of the Main Southern Railway, as proposed by the Commissioners, passes through the midst of the limestone valley, situate between the Slieve Bloom Mountain and the Leinster and Tipperary coal districts. It is probable that by a proper construction of the grate, the pure, though dense, non-flaming coal of these districts may be used with advantage for locomotive engines.

The Munster Coal District is perhaps the most extensive in the British empire ; it occupies large portions of the counties of Clare, Limerick, Kerry, and Cork, and coal-mines have been partially worked in all those counties. The coal is usually of a slaty structure, much softer than that of Tipperary or Kilkenny, and is therefore almost exclusively used for burning lime. The principal collieries are situate on the north side of the river Blackwater ; and at this moment extensive works are being carried on, particularly at Dromagh and Gurteen Collieries, 10 miles west of Mallow.

From the extent of coal already known in the southern part of this district, no doubts can be entertained of its capability of supplying the country for centuries to come with abundance of culm suitable for burning lime. This circumstance is of the utmost importance to the agriculturists of the south of Ireland, who find lime to be the best manure for raising crops, particularly wheat.

The Monaghan District.—We now proceed to the consideration of the bituminous coal districts, situate to the north of Dublin, and shall commence with that of Carrickmacross, in the county of Monaghan.

In this locality the coal formation rests upon a small tract of car-

boniferous limestone, which is insulated in the central graywacke slate district. Hitherto, though many trials have been made, no coal worth working has been met with; only one bed of 14 inches, one of a foot, and several of inferior thickness, have been discovered.

The Connaught Coal District is situate on the eastern side of Lough Allen, near the sources of the river Shannon, and comprehends portions of the counties of Roscommon, Leitrim, and Sligo. It consists of a group of hills of considerable elevation. The coal occurs in detached basins near the summits of some of the hills: it has never been extensively wrought; and as there is only one workable bed, varying in thickness from 2 to 3 feet, it is not probable that many extensive collieries or manufactories will be established in this district. The Arigna iron-works, which are in it, and which are the only works of the kind in Ireland, have been lately at work, and cast-iron of excellent quality can be made there at a moderate expense. The coal, though thin, is well adapted for the smelting of iron; the iron-stone is peculiarly rich, and limestone is abundant in the neighbourhood.

The Tyrone Coal District, which is situate to the north of Dunganon, in the county of Tyrone, though very small, is much richer in valuable beds than any other in Ireland. At present 9 workable beds are known, varying from 3 to 9 feet in thickness. At Coal Island 6 beds have been discovered and worked with various success during the last century; but the stratification of the district is so imperfect, and the consequent difficulty and expense of working the mines have been so great, that the adventurers have seldom obtained any considerable profit from them.

The Antrim Coal District is situate on the north coast of the county of Antrim, close to Fair Head, and occupies the country on both sides of that headland. The collieries have been wrought at a very remote period, but at present no coal is raised in the district, owing partly to the difficulty of working to the dip of the old excavations, and partly from the want of a safe harbour for shipping. At the same time it may be remarked that the extent of coal remaining unwrought must be inconsiderable.

It will be perceived from the foregoing statements that Ireland contains abundance of valuable stone, marble, and slate quarries, many of which are at present in successful operation; and that the metallic mines now at work, though limited in number, are very prosperous; and, should the prices of copper and lead increase, much more extensive works will probably be undertaken. Of the bituminous coal-mines of the northern districts it may be said, that they are inferior both in productiveness and purity of coal to those of Great Britain; but that the anthracitous coal districts of the south are sufficiently extensive, and contain abundance of that coal, which, though less agreeable than the bituminous for domestic use, is most valuable in all cases where a strong and steady heat is required.

The geological formation of Ireland is a valuable guide in determining the best lines for improved internal communication, whether by ordinary roads, by railways, or canals; for it is found that the lowest and most level lines through the country are almost exclusively confined to the carboniferous limestone, and that as soon as the boundaries of that rock are passed, difficulties are encountered which it is desirable to avoid. In

addition, all the populous towns of the interior of Ireland are situate in the limestone country, and nearly the whole of the rich arable pasture-lands are confined within its limits.

It is to be remarked that in these fertile plains less exertion has hitherto been displayed than in other parts of the country where the soil is of inferior quality, but where, owing to the industry of the people, the quantity and the quality of the crop per acre is superior to that produced on the rich calcareous loams. Thus, in the rich plains of Meath and Westmeath, nothing is looked to but grazing and fattening cattle upon the natural produce of the soil, unaided by green-crop husbandry; while the farmers of the slate and granite districts of the counties of Down, Armagh, Louth, Wicklow, and Wexford produce excellent corn and green crops, and the most improved system of husbandry is now being gradually introduced among them.

On the various grounds before stated, which may here be briefly recapitulated—the amount of population which would be benefited; the condition of that population, and their power to profit by the advantages of railway communication; the industry and comparative commercial activity prevailing among them; the comparative amount of traffic and number of passengers; the great towns which would be connected by the least extent of railway; the singular fertility of many of the southern districts; their capabilities of great and extensive improvement; the facilities which they afford for the construction of railways; the importance of connecting Dublin with Cork—the commercial capital of the south—with Limerick, Waterford, and Kilkenny, and with Belfast in the north; and further, on the ground of not interfering with or injuring any existing canal or river navigation—the Commissioners have come to the conclusion that the two following main lines, with the branches described, will confer the most extensive accommodation at the least expense, and afford the greatest return on capital.

The first, being the main line to Cork, should pass near Maryborough, at a little beyond which town it should throw off a branch to Kilkenny. From Maryborough it continues by Thurles to Holycross, where it throws off a branch to Limerick; while the main line, continuing its course through Cashel, winds round the base of the Galtees mountains, close by Cahir, and passes through Mallow to Cork. As part of the same combination, Limerick should be connected with Waterford by a branch crossing a little to the south of Golder, and passing through Clonmel and Carrick to Waterford.

The results of the engineer's surveys on this line are very favourable. The point selected for the Dublin terminus is on the bank of the river Liffey, close to Barrack-bridge, and $1\frac{1}{4}$ mile from the Post-office. The line, as laid down, runs in a southern direction on the right bank of the Liffey, through Palmerstown and close to Lucan. Thence it continues in a south-west direction, passing near to the towns of Sallins, Rathangan, Monasterevan, Portarlinton, and Maryborough. Three miles beyond the latter place it is proposed to commence the branch to Kilkenny, by the towns of Abbeyleix and Ballyragget. The distance between Dublin and the commencement of this branch is $52\frac{1}{2}$ miles, and thence to Kilkenny is $26\frac{1}{2}$ miles, making the total distance from Dublin to Kilkenny 79 miles. From Maryborough the main line pro-

ceeds to within 3 miles of Borris-in-Ossory, where it will receive the passengers and merchandise from that town, with the towns of Roscrea, Castletown, Mountrath, and the surrounding districts. It is also probable that passengers from Galway, Loughrea, and the southern part of the county of Galway, with those from Parsonstown and its neighbourhood in the King's County, will join the railway at this station. From Borris-in-Ossory the line continues in the same direction, near Rathdowney, Templemore, and Thurles, to Holycross, where the line to Limerick diverges. The distance from Dublin to Holycross is $89\frac{3}{4}$ miles, thence to Limerick $35\frac{1}{4}$ miles, making the total distance to Limerick $125\frac{1}{2}$ miles.

From Holycross the main Cork line proceeds in a southerly direction to Cashel, and thence to Marhill, near New Inn, in the county of Tipperary, at which point it is intended that the line to Clonmel and Waterford should commence. But, in order to complete a direct railway communication between Limerick and Waterford, it is proposed that this branch line should be continued in a western direction, from Marhill towards Limerick, crossing the river Suir at Golden, and joining the line from Holycross to Limerick at Donaghill. The distance from Marhill to Donaghill will be 13 miles. The distance from Dublin to Marhill is $104\frac{1}{4}$ miles, and from the latter place to Waterford 37 miles.

From Marhill the Cork line follows the valley of the river Suir to Cahir, passes through the narrow valley interposed between the Galtees and Kilworth mountains, whence it continues by Mitchelstown to Kildorrery, and thence to the town of Mallow. The valley of the Blackwater, at Mallow, offers a very favourable line for the extension of the railway at some future period to Killarney, which is only 40 miles distant. This line would open a place of great resort to visitors, and would connect the extensive culm-collieries near the Blackwater with the interior of the limestone country, where fuel, and particularly culm, is much wanted for burning lime, both for building and agriculture. From Mallow the main line takes a southern direction to Cork.

During the year 1837 an Act of Parliament was obtained for constructing a railway between Dublin and Kilkenny. The Commissioners have examined fully into the line selected by this Company, and have enquired at much length how far it may be made part of their plan, or how their plan may be altered to unite with it; but they report that, as Ireland has not sufficient internal traffic to support distinct lines between the several important places, a combined system is necessary; and that the object sought being the best communication, consistent with economy, between the leading cities of Dublin, Cork, Limerick, and Waterford, the direct line to Kilkenny is deficient in both respects.

A project is already in contemplation for extending the Dublin and Kingstown Railway to Bray, and a detailed survey has been made, with estimates, which appear to justify the undertaking as an isolated measure. It may hereafter be found desirable to continue the line through the county of Wicklow to Wexford.

Turning towards the north, the leading object for consideration is to connect Belfast and Londonderry with Dublin. In these directions both the physical and geological structure of the country present many difficulties which do not occur on the southern lines. The limestone

district, so favourable to the construction of railways, ceases at the rivers Blackwater and Boyne, and the greater part of the country to the north of those rivers is composed of transition slate rocks, or of crystalline granite or green-stone, and the whole country is either hilly or mountainous. The direction of the ridges also is usually south-east, directly across the desired line of communication.

Previously to the appointment of the Commission, Acts of Parliament had been obtained for constructing a line of railway coastwise from Dublin to Drogheda, and also inland from Belfast, by Lisburn and Lurgan, to Armagh.

Surveys had also been made from Drogheda, in continuation of the coast-line, by Dundalk to Newry, and thence, parallel to the Newry Canal, to Portadown, where it joined the Belfast and Armagh line. Another survey was made to connect Dublin with Armagh by an inland line crossing the Boyne, nearly midway between Drogheda and Navan, and continuing thence by Ardee and Castleblaney to Armagh. Several other surveys of a less important character had likewise been made to connect inland towns with the coast; the greater number of which were intended for tram-roads, to be worked by horses. One of these extended from Drogheda to Longford, through Navan and Kells; a second from Dundalk to Cavan, through Castleblaney and Cootehill; and a third from Portrush, on the north coast of Antrim, to Armagh, through Coleraine and Kilrea.

With these surveys before them, and weighing the natural difficulties of the country, the Commissioners, after proper surveys were made, determined that the best lines for internal communication to the north and north-east of Ireland run through Navan, Carrickmacross, and Castleblaney to Armagh, and through Navan, Kells, Virginia, and Cavan to Enniskillen. An Act of Parliament having been obtained for a railway between Armagh and Belfast, the Commissioners adopted the line as the continuation and completion of their main line to the latter town.

The first 28 miles from Dublin to Navan are common to both the Armagh and Enniskillen lines; at that town they diverge, that to Belfast taking a northerly course, by Carrickmacross and Castleblaney to Armagh. The distance between Navan and Armagh is $57\frac{1}{2}$ miles, and the total distance from Dublin to Armagh $85\frac{1}{2}$ miles. The Enniskillen line continues from Navan up the valley of the River Blackwater, passing through Kells and Virginia. As far as Kells the country is unusually favourable; but between that point and Cavan, and thence to Newtown-Butler, in the county of Fermanagh, the character of the district is hilly, and the expense of construction will be proportionably increased. Beyond that town the line passes through the flat country, skirting the north-eastern margin of Upper Lough Erne, to Enniskillen. This may be considered a central station to which passengers and commercial traffic may be expected to converge within a considerable circuit, including the important towns of Londonderry, Letterkenny, Strabane, Omagh, Donegal, Ballyshannon, and Sligo; and hence it is chosen as the terminus of the north-western railway. At some future time it may be expedient to continue this line to Londonderry, through Strabane, Newtown-Stewart and Omagh; but at present

the intercourse would not justify such an extension. The distance from Dublin to Enniskillen is $96\frac{1}{2}$ miles; from Navan it is $68\frac{1}{2}$ miles.

Among the lines proposed by private companies, the Commissioners examined that proposed by the Great Central Irish Railway Company, to run from Dublin to Mullingar, and to be continued thence by Longford and Carrick-on-Shannon to Sligo; with another line, which has also been laid out from Mullingar, by Athlone, Ballinasloe, and Loughrea, to Galway. They report that such lines would greatly injure the Grand and Royal Canals, without being able to support themselves.

It would be impossible to follow the Commissioners in their enquiries into the best modes of constructing and working railways, or into the detail of the estimates which they have prepared for the proposed lines; such information would only be useful in a very full and detailed form, in which it would not be fitted for the present paper. It will be sufficient therefore to say, that the Commissioners consider that, in Ireland, 10,000*l.* to 12,000*l.* per mile may be generally made to cover all the charges of the construction and appointments of a railway. They estimate the annual expense of working each engine at 1750*l.* per annum, and the carriage, and other expenses attending the locomotive, at 875*l.*; the remaining expenses of a line they calculate at as much more, 2625*l.*; making the whole expense per engine 5250*l.* The medium day's journey of an engine may be estimated at 80 miles; therefore assuming a charge of 2*d.* per ton, and excluding Sundays, the expense of working an engine will be covered by its carrying through the whole distance a net load of 25 tons: all that it takes beyond this will be applicable towards a dividend on the capital expended. The Commissioners estimate the expenses of constructing the south-western main line, with its branches, as follows:—

Main line, $166\frac{1}{2}$ miles, at 11,000 <i>l.</i> per mile . . .	£1,831,500
Kilkenny Branch, $26\frac{1}{2}$ miles, at 8000 <i>l.</i> per mile . .	212,000
Limerick „ $35\frac{1}{2}$ „ at „ „ . .	286,000

Total cost of construction	£2,329,500
--------------------------------------	------------

The total surplus revenue is estimated at 82,137*l.*, which would yield a dividend on the above capital of about $3\frac{1}{2}$ per cent.

The cost of the Waterford and Limerick branch from the former town to Donaghill, where it joins the Limerick branch, is estimated at 400,000*l.*, being 50 miles, at 8000*l.* a mile. The surplus revenue is calculated at 15,337*l.* per annum, which would yield a dividend of 3·8 per cent.

The cost of the northern lines, according to Mr. Macneil's Report, is as follows:—

From Dublin to Navan	£257,513
„ „ Navan to Armagh	777,595
„ „ Navan to Enniskillen.	865,218

	£1,900,326
--	------------

Stations and Carrying Establishments . .	114,720
--	---------

Total cost	£2,015,046
----------------------	------------

According to the estimate of the Commissioners the whole annual receipt on these two lines will be 126,106*l.*, which will yield a dividend of 4·32 per cent. if the construction cost 12,000*l.* per mile, and 5·18 per cent. if it cost 10,000*l.* a mile; the mean being 4·75 per cent. at

11,000*l.* per mile. All the estimates of traffic and passengers have been taken on a very low scale, and there is every reason to expect a considerable increase upon the revenue here stated.

It was part of the duty with which the Commissioners were charged, to enquire whether Ireland, as compared with England, offers any peculiar facilities for a steam communication with America, and how far they might be improved and increased. It is obvious that, as Ireland has itself little or no traffic with America, and as it will be long before it will have any, the freight of any vessels leaving its ports, whether passengers or goods, will come almost exclusively from Great Britain. The enquiry, therefore, resolves itself into three questions :—First, are the superior facilities afforded in departing from Ireland sufficient to compensate for the expense and inconvenience of a conveyance of the freight across Ireland to the port of departure ; or, secondly, would it be more advantageous to make the voyage direct from Great Britain ; or, thirdly, would a middle course be advisable ;—namely, that steam-vessels should take in the bulk of their cargo, fuel, &c. in Great Britain, and touch at an Irish port for a portion of their passengers and cargo, fuel, and other sea-stores ? With regard to the first point, the Commissioners consider that vessels departing from any port in Ireland for general purposes could not in any way compete with those leaving Great Britain direct, which necessarily implies the affirmation to the second proposition. The adoption of the third course would depend upon the degree of importance attached to the addition in the stowage of freight, which would in such case be obtained by the reduction in the stock of fuel ; by the probability of obtaining passengers and goods in Ireland ; and by considering how far these advantages would compensate for the delay and prolongation of the entire voyage, occasioned by touching at an intermediate port. It is probable that vessels from Liverpool and Glasgow would find in the supply of fuel a good reason for touching at the most convenient westward port in Ireland, and, if advantages were experienced by passengers in embarking at the same port, the inducement would be greatly increased ; but, in the present state of Ireland, the travelling to such port by the common road would be attended with little saving of time, and with a great increase of trouble, fatigue, and expense. The selection, therefore, of a western port in Ireland does not appear, at present, to be a consideration of great importance ; but it remains to be seen how far these circumstances might be altered by railways.

The four ports, which are at all suitable for the object proposed in this enquiry, are Tarbert, on the Shannon, Valentia, Berehaven, in Bantry Bay, and Cork. Of these Cork presents, in every respect, the greatest advantages. Both Berehaven and Valentia are far removed from any existing establishment, or from the resources that might be useful to a station of departure for America. They are besides respectively only 69 and 87 miles westward of Cork. Tarbert possesses the advantage of an immediate connection with Limerick, but it is completely out of the course of vessels from England and Scotland. A railway, moreover, to either of these ports would not be likely to maintain itself.

The Commissioners therefore consider that, on the whole, Cork, under present circumstances, will answer every purpose for which a western

port can be required to promote a steam communication with America. It offers at present no other advantage than that of a port where vessels may complete their supply of fuel previous to taking their final departure. But by the establishment of a railway from Dublin to Cork, and also of the most improved and rapid railway and packet communication between London and Dublin, which the Commissioners assert is also indispensable, the intercourse with America may be accelerated to the utmost degree of which it is at present susceptible. With the view of determining the speediest mode of communication between London and Dublin, the Commissioners have had surveys made through Wales, and several projects are contained in their Report for railways from London to the Welsh coast. Of these the two most eligible appear to be those to Holyhead and to Porth Dynllaen on the coast of Carnarvonshire, the difference between those two lines in point of time being very small. The following table will shew the lines which have been projected, and their respective merits as regards speed.

Rates at which it is calculated that the Mails may be conveyed from the Post Office in London to that in Dublin, by the construction of the several projected Railways.

English Port.	Distance from London.	Time by Railway.	Irish Port.	Length of Voyage.	Time on Voyage, including 30 min. for embark- ing and sailing.	Time from Irish Port to Dublin, including land- ing.	Whole Time.	Hour of Arrival in Dublin.	Hour of Departure from Dublin to London.
	Miles.	H. M.		Stat. M.	H. M.	H. M.	H. M.	H. M.	H. M.
Holyhead . .	273	10 35	Kingstown	63	6 48	0 30	17 53	1 53 P. M.	11 7 A. M.
Liverpool . .	210	8 17	Ditto.	130	13 30	0 30	22 17	6 17 ..	6 43 ..
Ormes' Bay . .	230	9 1	Ditto.	96	10 6	0 30	19 37	3 37 ..	9 28 ..
Porth-Dynllaen	260	10 8	Ditto.	70	7 30	0 30	18 8	2 8 ..	10 52 ..
Porth-Dynllaen	260	10 8	Wicklow .	60	6 30	1 23½	18 1½	2 1½ ..	10 58½ ..
Fishguard . .	260	10 8	Ditto.	79	8 24	1 23½	19 55½	3 55½ ..	9 41½ ..

One half hour is allowed from the post-office in London to starting on railway; 27 miles per hour for the railway; 30 minutes from railway to embark and sail; 10 miles per hour for steam-packet voyage; 2 hours additional for return to London, to allow for occasional long passages by sea. Hour of leaving London, 8 P. M.; hour of arrival, 7 A. M.

The Commissioners conclude their Report with an enquiry into the nature and amount of the assistance which should be afforded by the Government towards the prosecution of these undertakings. They show the present anomalous and miserable condition of the Irish peasantry;—they enumerate the advantages which the establishment of railroads would confer upon them, as well as upon the nation at large by the increased revenue which would arise from any improvement in their condition;—they enlarge upon the influence which railways have had elsewhere in developing the resources of a country, as well as the improvements which have been introduced in Ireland itself by the extension of internal communication and by steam navigation—and they conclude by recommending an immediate and liberal attention to the claims of Ireland for assistance, which cannot be conferred in any shape more likely to prove beneficial than by encouraging public works of extensive and permanent utility, which will afford the means of present employment of a steady and remunerative nature to a large

body of the people, and at the same time lay the foundation of their future improvement and prosperity. If parties can be found to undertake the proposed lines it would doubtless be the best policy to leave them to their own independent exertions; the Government removing every impediment over which they have any control, by granting the necessary Act of Parliament without expense, as for a public purpose, and taking steps to prevent any exorbitant or unnecessary charges for remuneration for the land required. There can be no doubt that capitalists would be found to undertake certain portions which hold out special prospects of advantage—such, for example, as the first 20 or 30 miles out of Dublin; but it is not so certain that they could be induced to undertake the whole of the proposed lines, upon which, as has been shewn, the profit is not likely for some time to exceed 3 or 4 per cent. At all events it is most desirable, and the efforts of the Government should be directed to combine the whole of the proposed lines into one interest, and under one management and control, or at most into two, the northern and the southern. Should private parties not be found willing to advance capital for the undertaking, the Commissioners suggest that the Government should advance, by way of loan, a considerable proportion of the amount of the estimates, at the lowest rate of interest, and on the easiest terms of repayment, to be secured by a mortgage of the works. They think that many landholders may also be found to subscribe towards carrying into effect an object, which, in addition to its importance as a national concern, cannot fail to benefit and improve their own properties. As a further assistance in filling the subscriptions, perhaps powers might be given to the counties interested, as well as to corporate towns, to become shareholders to certain amounts; the Government, in such cases, advancing the money on the security of presentments in the usual manner, and the return on such shares being available for the reduction of the county or other rates.

If these means be rejected, or fail to produce sufficient subscriptions to insure in the first instance the execution of the entire system, it is suggested that the work might be commenced at Dublin, or any other fixed point, and be continued as far as the funds will admit; such portion, however, not to be considered as an integral line, but only as part of the general system, and to be continued from that point to the ultimate intended termini as soon as new subscriptions are received.

Lastly, the Commissioners suggest that the Government should undertake either or both of the proposed lines, on the application of the counties interested; the outlay to be repaid by small instalments, at the lowest admissible rate of interest, and under the provision that, in the event of the returns not paying the stipulated amount of interest, the counties shall supply the deficiency by presentments. Should either of these suggestions be adopted, the Government will possess a share in the direction of the works; but even if they be undertaken without public aid, the Commissioners are of opinion that they should, in a certain degree, be subject to the control of the State; for that the public interest requires that the parties undertaking them should be subject to such conditions, and held subject to such well-considered regulations and effective control, as shall secure to the country at large the full benefit and accommodation of this admirable system.

R.